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Why Did Employment and Earnings Rise Among Lone Mothers During the 1980s and 1990s?

by John Myles, Feng Hou, Garnett Picot and Karen Myers

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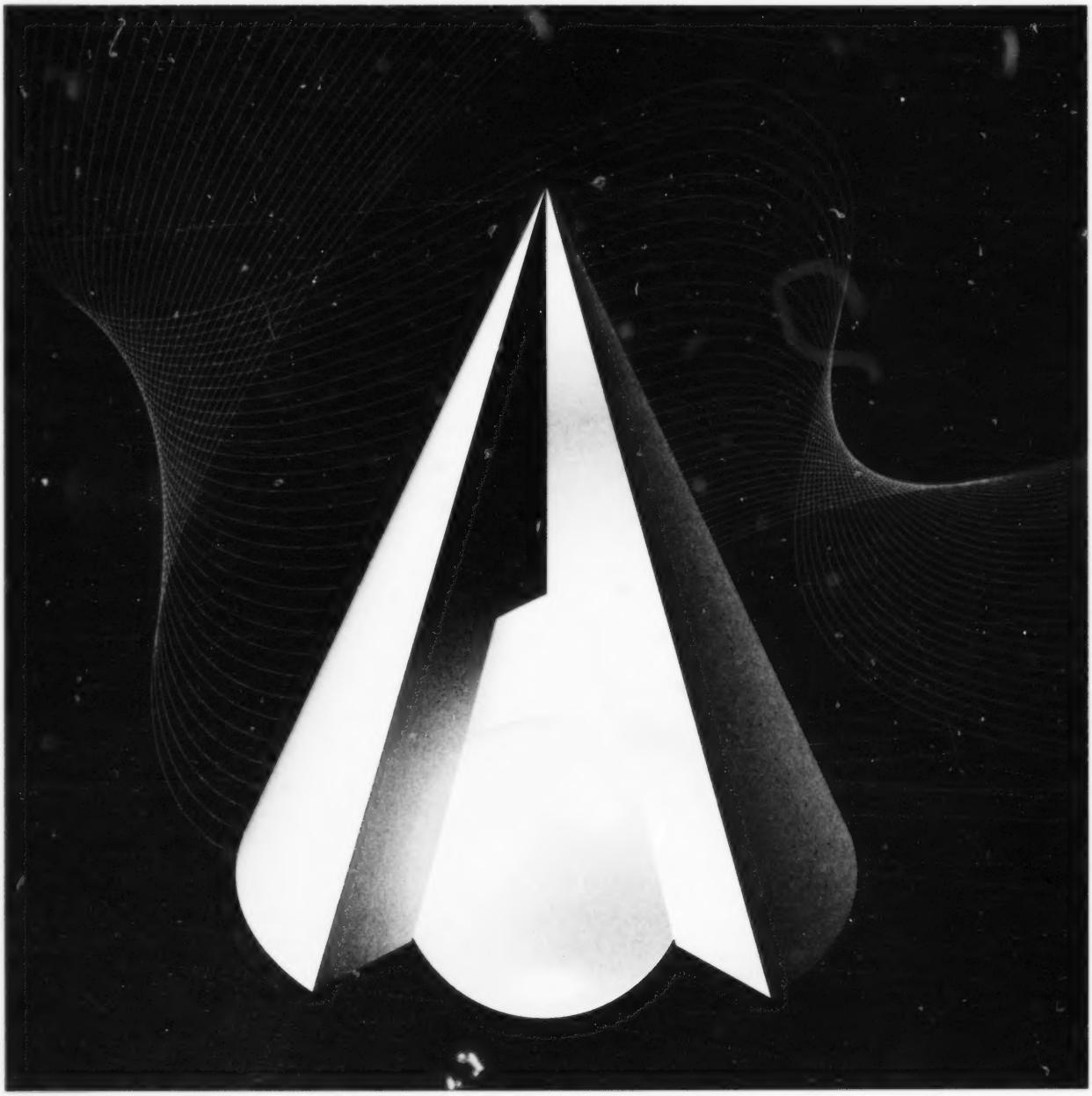

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Abstract

Employment rates and earnings among single mothers improved significantly after 1980, and by 2000, low-income rates reached new historic lows. Unlike married mothers, most of the gains among lone mothers were the result of the dynamics of population change and cohort replacement as the large and better-educated baby boom generation replaced earlier cohorts and began entering their forties. Most of these gains, moreover, went to older lone mothers. The demographically driven gains of lone mothers in the past quarter century were a historical event unlikely to be repeated in the future. Since the demographic drivers underlying these gains are now nearing maturity, future gains from this source are likely to be modest.

Keywords: female lone parents, employment rate, earnings.

1. Introduction

Rising female employment has been a defining feature of all contemporary labour markets, and employment rates of lone mothers have been no exception to this trend. Employment rates among Canadian lone mothers rose 12 percentage points to 73% between 1980 and 2000, and average earnings of all lone mothers (including those with zero earnings) were up by 39%. As a result, the low-income rate among lone mothers declined from 59% in 1980 to 56% in 1990, and to 48% in 2000.[1] In comparison with married mothers, however, these gains were modest. Between 1980 and 2000, the share of married mothers with employment earnings rose from 58% to almost 80%, and their average earnings more than doubled.

There are two broad reasons for long-term trends in mothers' employment. First, major socio-cultural shifts associated with the 'gender revolution' and change in labour demand resulting from the rise in service employment have transformed the labour market behaviour of women with otherwise similar family and labour market characteristics. Mothers with small children, for example, are much more likely to remain in, or return to, employment, and women of all ages and education levels are more likely to be employed than in the past. Governments have also intervened to encourage employment among low-income mothers and especially among lone mothers. During the 1990s, many Canadian provinces introduced changes in social assistance benefits aimed at increasing employment, and Quebec sharply increased child care subsidies. The National Child Benefit, introduced in 1998, was also designed to encourage mothers' labour force attachment.

Second, the socio-demographic characteristics of mothers and their families that condition women's labour force participation and earnings have changed dramatically (Galarneau 2005). Specifically, today's mothers, both married and single, are much better educated, considerably older, and have fewer children than in the past—changes brought about primarily through the inflow of baby boomers into the labour market. In 1980, the population of lone mothers was made up predominantly of cohorts born before 1950. During the 1980s and 1990s, they were replaced by the baby boom cohorts born in the 1950s and early 1960s, consisting of women with much higher levels of education and labour force attachment. Then, during the 1990s, these socio-demographic changes were amplified by the aging of the baby boomers in two ways. First, the baby boom cohorts began entering their forties, an age when both employment and earnings tend to be higher (Dooley 1999). As a result, the share of all lone mothers aged 40 to 49 rose from 25% in 1981 to 38% in 2001, while the share of lone mothers under 30 declined from 25% to 18%.[2] Second, as the baby boom mothers aged, their educational profile improved substantially, reflecting the tendency of early births to occur among less-educated women.

Our aim, in this paper, is to isolate the contribution of these socio-demographic shifts to changes in labour market outcomes for lone mothers relative to their married peers. Dooley's (1994: 615) main conclusion for the 1973 to 1988 period, when the baby boom cohorts were still quite young, was that changes in the socio-demographic characteristics that condition employment accounted for only a modest share of employment gains among both lone and married mothers. Our results for *married*

1. Transfers also rose over the period (by 9%) but earnings rose much more (39%). The share of lone mothers with earnings sufficient to raise their incomes above the low-income cutoff (LICO), even in the absence of transfers, rose by 6 percentage points. Among those with market incomes below the LICO, the low-income gap also fell slightly from 0.72 to 0.68.

2. The 'aging' of the population of mothers, of course, also reflected increases in the age at which women have their first child.

mothers for the 1980 to 2000 period are consistent with his conclusion. Employment and earnings among married mothers rose well beyond levels that could be expected on the basis of changes in their labour market and family characteristics alone. In contrast, changes in both employment and earnings among *lone mothers* were almost entirely driven by changes in educational and age composition. The changes that have been driving the 'gender revolution' among married mothers have brought only modest gains in the labour market situation of lone mothers.

The policy significance of these results is twofold. First, the fact that 'demography' accounts for most, or all, of the change implies that labour market opportunities for lone mothers with otherwise similar characteristics (age, education) remain much the same in 2000 as in 1980. Second, the demographically driven gains of lone mothers in the past quarter century were a historical event unlikely to be repeated in the future. The aging of the baby boomers was a one-time event that will only be faintly 'echoed' as their children enter their child-bearing years. As importantly, the revolution in female education levels that divides post-war generations from their predecessors is now reaching maturity. The implication is that in the absence of other policy or behavioural change, future earnings gains and the associated decline in single mothers' low-income rates are likely to be modest.

2. Literature review

In the 1990s, Canadian research on lone mothers was preoccupied with the question of why welfare caseloads were continuing to rise. The failure of caseloads to fall during the recovery of the late 1980s had raised the question of welfare dependence (Dooley 1994). While it was recognized that lone mothers accounted for only a small proportion of the increase, lone-mother families are significantly more likely than other family types to be poor, and more likely to receive social assistance (Dooley and Finnie 2001). Moreover, there was concern that while married women were experiencing dramatic increases in employment and earnings, lone mothers, especially young ones, were falling behind. In 1973, lone mothers were more likely to participate in the labour market than married mothers. By 1988, the reverse was true. Over this period, labour market participation for both groups grew, but growth was considerably more rapid for married mothers, rising from 40% to 73% versus 57% to 67% among lone mothers (Dooley 1994).

Early studies showed that the demographic characteristics of lone mothers are strong predictors of labour market behaviour. Using cross-sectional data from the 1989 Labour Market Activity Survey, Charrette and Meng (1994) found that labour market participation was less likely for lone mothers with little schooling and for those who were never married. Using the same data, Christofides, Stengos and Swidinsky (1997) reported similar results.

Dooley (1994) was the first to ask about the relative importance of changes in socio-demographic characteristics for mothers' employment. Using cross-sectional time series, Dooley (1994) asked to what extent the convergence of the labour force participation rates of lone and married mothers could be accounted for by demographic and economic factors. He found that significant changes in the composition of the lone mothers' population had occurred, but that these changes had a contradictory effect on labour market participation. Between 1973 and 1988, the average age of lone mothers declined slightly and the proportion of mothers with a preschool child increased slightly. More dramatically, the proportion of lone mothers who were never married doubled, as did the proportion of lone mothers with at least some postsecondary

education.[3] Given the offsetting influences of such changes, a decomposition analysis found that observed variables accounted for only 29% of the changes in the employment rate of lone mothers.

Later research showed that the different directions in which these trends appeared to work at the aggregate level were actually indicative of two distinct groups of lone mothers. Dooley (1999) reports sharp differences between the labour force participation rates of lone mothers under 35 years of age versus lone mothers over 35. Analyzing changes in welfare participation of Canadian lone mothers between 1973 and 1991, he finds that lone mothers under 35 had an increasing reliance on social assistance accompanied by stagnant wages and declining labour force participation. In contrast, older lone mothers showed decreasing reliance on social assistance accompanied by rising wages and earnings. These age differences reflect, on the one hand, the declining relative earnings of all younger women (and men) over the period (Bouderbat, Lemieux and Riddell forthcoming), and, on the other, the wage penalty associated with early child-bearing (Drolet 2002).

Dooley (1999) also finds that never-married lone mothers have lower levels of labour force participation and higher levels of welfare participation than those who were previously married due, in part, to the fact that the never-married tend to be younger. This finding is reinforced by research on family change. Using the National Longitudinal Survey on Child and Youth, Juby, Le Bourdais and Marcil-Gratton (2003) find that lone mothers' financial circumstances, after separation, are closely linked to the intact family income before separation and to the way the couple shared income-earning. The most affluent lone mothers, for instance, are those from the most affluent intact families, and who were already fully involved in the labour force before they separated (Juby, Le Bourdais and Marcil-Gratton 2003: 20).

Dooley and Finnie (2001) use the Longitudinal Administrative Database (LAD) for the years 1982 to 1997 to investigate differences between these two groups more systematically. Importantly, the LAD enabled them to distinguish between two groups of the 'never-married': those who had previously been in common-law relationships and those who were unattached (single). They show that most of the increase in the 'never married' category is due to the increase in common-law relationships. Over the period of their study (1985 to 1995), they report deterioration in reliance on earnings among the previously single and, to a lesser degree, among those previously in common-law relationships.

During the 1990s, governments used both 'carrots and sticks' to encourage higher female employment. Quebec produced significant increases in mothers' labour market participation by raising child care subsidies for single mothers early in the decade and by introducing '$5 per day' day care in 1997 for all mothers (Baker, Gruber and Milligan 2005; Lefebvre and Merrigan 2005). Falling levels of social assistance benefits during the 1990s also played a role in reducing caseloads and raising lone mothers' employment levels. As in the United States (Blank 2002), however, untangling the effects of 'welfare reform' on the one hand and economic recovery on the other (Roy 2004) on lone mothers' employment is a difficult task, and the changes were uneven among provinces. Between 1986 and 2001, maximum benefits from provincial and federal sources for a single mother with one child fell by 26% in Alberta, 10% in Ontario, but remained essentially unchanged in Quebec and rose slightly in British Columbia and New

3. The proportion of lone mothers with at least some postsecondary had risen from 16.6% in 1973 to 33.1% in 1988.

Brunswick (National Council of Welfare 2005). Kapsalis (1997) estimates that the large welfare cuts in Ontario in the mid-nineties induced an increase of 5.7 percentage points in the employment rates of lone mothers between 1994 and 1996. By reducing the income test on the child's portion of income transfers to low-income families, the National Child Benefit, introduced in 1998, was also designed to encourage labour force attachment.

U.S. research has also focused on increases in the economic well-being of lone mothers that began in the late 1990s following major welfare reforms in 1996. In the mid- to late 1990s, social assistance caseloads started to decline and labour force participation rates started to rise. In 1997, for the first time in more than 30 years, the participation rate of never-married mothers with pre-school-aged children exceeded that of married mothers with pre-school-aged children (Burtless 2000). Based on the official U.S. poverty line, poverty rates among single-mother families declined from 35.4% in 1992 to 24.7% in 2000 (Blank 2002).[4] A major debate in the literature is what caused this increase in well-being. According to Blank, the answer is mixed and partial. There remains debate as to how much these results were due to a strong economy, to program reform, or to their interaction.

Surprisingly, there has been little research in the U.S. on the link between demographic change and the increased economic well-being of lone mothers. In her comprehensive review of the welfare reform literature, Blank (2002) does not report any studies that cite rising levels of educational attainment as a potential explanatory factor. While this oversight remains puzzling, we can think of at least two reasons why it occurred. First, the overall increase in educational attainment for single mothers may have been overshadowed by a less positive educational story: the dramatic increase in the incidence of lone motherhood among less educated women (Ellwood and Jencks 2004).[5] Second, at first glance the timing appears to be off. For example, while Fang and Keane (2004) note that education levels among lone mothers did increase dramatically from 1970 to 2000, they dismiss the potential impact of education, arguing that most of the increase occurred before 1996 and therefore could not account for decreased welfare caseloads after 1996. The limitation of this argument, however, is that it does not account for the potential effect of the business cycle. In other words, the impact of rising education levels that occurred in the 1990s (at the low point of the business cycle) would not be realized until the upturn which began in the late 1990s.

3. *Data and analytical approach*

The data for this analysis come from the 1981, 1991 and 2001 Censuses of Canada. The census is the only data source that combines information on education level and earnings in a consistent way for the past two decades.[6] Moreover, the large sample size of the census (a 20% sample of the

4. But as Blank (2002) points out, the decline in poverty is far less than the reduction in public assistance caseloads. As a result, the share of working poor in the United States population rose, as some women left public assistance for employment but remained poor. Moreover, the poverty rate does not tell the full story. The poverty gap based on after-tax income over the 1990s rose from $1447 to $1524. Haskins (2001) shows a rise in deep poverty (the number of persons at less than 50% of the poverty line) in the mid-1990s.

5. Ellwood and Jencks (2004) document the increasingly strong relationship between lone parenthood and educational attainment. As they point out, in the U.S., the increase in non-marital births has occurred primarily among those with only a high school degree or less. However, while the least educated are more likely to become lone mothers, the trend towards rising educational attainment means that there are fewer and fewer women in this category.

6. The Survey of Consumer Finances and the Survey of Labour and Income Dynamics series do not permit consistent coding of education, as a a result of a classification change in 1989.

Canadian population) makes it the best data source for studying small populations such as lone mothers. We use census data for the earnings reference years 1980, 1990, and 2000, years that were at very similar points in the business cycle.[7] We restrict our sample to lone and married mothers under age 65 with one or more children aged 18 or under.

Our leading question is the extent to which the rise in the employment rate and earnings of lone mothers can be explained by changes in their demographic composition. To establish the contribution of compositional changes, we consider four outcomes. First, we examine the effect of compositional changes on rates of labour force participation (the presence of positive earnings during the reference year). Second, among those with positive earnings, we examine the effect of compositional changes on the level of (log) annual earnings (in 2000 constant dollars). Since trends in annual earnings reflect changes in both wage rates and labour supply (hours and weeks worked), we also include estimates of changes in weekly earnings. Increases in labour supply, as indicated by weeks worked, rose much more among married than among lone mothers. The share of employed lone mothers working almost full year (40 weeks or more) increased from 43% to 56% (13 percentage points) while that of employed married mothers increased from 36% to 62% (26 percentage points).

Finally, to determine whether our conclusions with respect to the *average* employment and earnings of lone mothers are also relevant to understanding changes at the low end of the earnings distribution, we investigate how compositional changes have impacted the proportion of lone mothers with annual earnings above the low-income cutoff (LICO).[8]

Our independent variables include age (divided into five-year cohorts), education (less than high school, high school graduation, some postsecondary, and university degree), number of children who are 18 and under, the presence of a child under the age of 6, and immigrant status. For lone mothers, we also include an indicator of marital status (never married, divorced/separated, and widowed).[9] For married mothers, we include a measure of husbands' earnings.[10]

To determine the extent to which changes in the employment and earnings of single mothers can be explained by changes in their demographic composition, we employ a standard Oaxaca-Blinder (Oaxaca 1973; Blinder 1973) decomposition. The objective is to 'decompose' the change in our dependent variables (employment, earnings and the low-income rate) into two portions: the portion

7. The year 1990 is a partial exception as results reflect the early months of the recession that began half-way through the calendar year.

8. We use the LICO measured before taxes since post-tax LICOs are not available in the census. Since the LICO is affected by the earnings of all persons in the economic family, changes in the LICO may be driven by changes in the composition of lone-mother families (e.g., the share living with parents or adult siblings and children). However, the share of all lone mothers living in economic families with a second wage earner was essentially unchanged between 1981 (16%) and 2001 (15%). The percentage of lone-mother families with only one adult actually rose slightly from 80% in 1981 to 85% in 2001.

9. Our marital status indicator is less than ideal since, among the never-married, we cannot separate the previously single from those who were previously in common-law unions.

10. In some of our intermediate models, we also included controls for provincial unemployment rates and social assistance benefits (see Dooley 1994). Since these variables did not affect the share of employment and earnings changes accounted for by changes in demographic composition, we present the results for more parsimonious models that do not include these controls.

that can be 'explained' by changes in demographic composition (as indicated by changes in the means of the explanatory variables in our model) and the portion that is 'unexplained' (as indicated by changes in the associated coefficient estimates). For each of our dependent variables, we begin by running separate regression models for each time period. For example, we have regression models $Y_1 = a + B_{1i}X_{1i} + e_1$ for earnings at time 1 and $Y_2 = a + B_{2i}X_{2i} + e_2$ for earnings at time 2. The difference in the means between $\overline{Y_1}$ and $\overline{Y_2}$ (ΔY) that can be attributed to the differences in the means between X_{1i} and X_{2i} is called the 'explained' component in mean–coefficients analysis. The 'explained' portion identifies the contribution of changes in measured characteristics such as education, age, number of children, etc. The remaining portion of ΔY represents changes that are 'unexplained' by changes in the values of the independent variables. The 'unexplained' portion contains the effects of all variables that are not part of the model, such as the behavioural changes of mothers due to social policy reforms, or cultural change and shifts in the labour market opportunity structure (e.g., changes in returns to education).

Because our employment variable (share with positive earnings) is dichotomous, we use both the Oaxaca-Blinder method and the Even-Macpherson (1994) approach. The former uses an ordinary least squares (OLS) regression model to estimate the probability of being in low income; the latter uses a logit model. The advantage of the Oaxaca-Blinder decomposition is that it can decompose the overall change into three components: (a) the share due to changes in composition (the Xs); (b) the share due to changes in the coefficients (the effect of Xs); and (c) the joint effect (or interaction) of changes in composition and coefficients.[11] Its limitation, however, lies in the well-known problem of fitting OLS models for a dichotomous dependent variable. When the outcome is highly skewed (e.g., less than 20% in a category) the results are subject to 'floor' or 'ceiling' effects and can generate predicted probabilities outside the 0-to-1 range. The Even-Macpherson approach is statistically more appropriate for dichotomous outcomes; however, unlike the Oaxaca-Binder method, it is unable to identify the contribution due to the means-coefficient interaction. Moreover, the Even-Macpherson approach lacks the ready interpretation of the linear probability (OLS) approach. Since the distributions of both our dichotomous outcomes are well within the acceptable range for the OLS approach (Moffit 1999) and since both techniques yield substantively identical results, we present the OLS results for ease of interpretation.

4. Descriptive results

4.1. Changes in composition

We begin with a descriptive analysis of changes in the characteristics of lone and married mothers that are typically associated with labour market participation and earnings (Table 1). Three changes stand out. First, there was a dramatic increase in the share of lone and married mothers in their forties. The share of lone mothers aged 40 to 49 rose moderately from 24% to 26% during the 1980s but then grew by 10 percentage points to 36% between 1991 and 2001 while the share of lone mothers under 30 declined from 25% to 18%. This trend was almost identical for lone and married mothers. Second, education levels of both lone and married mothers rose substantially. The proportion of lone mothers with some postsecondary or university education rose from 28% to 49%. For married mothers, the change was from 31% to 56%. Finally, the proportion of lone mothers

11. The size of the 'explained' component may vary greatly depending on whether B_{1i} or B_{2i} are used as weights (Blau and Graham 1990). The differences in the 'explained' components derived from B_{1i} or B_{2i} equals the joint effect of means and coefficients captured by the interaction term.

classified as 'never married' rose from 17% to 38% and the share of widows declined from 17% to 5%. As Dooley and Finnie (2001) show, the rise in the never-married is largely due to the increase in lone mothers previously in common-law relationships. Other family characteristics that potentially affect participation in paid work—number of children and the presence of young children—remained comparatively stable despite the large increases in age and education levels.

The change in education levels is particularly striking. The proportion of lone mothers with postsecondary or university education rose by 9 percentage points in the 1980s and a further 12 points in the 1990s. Among married mothers, the corresponding figures were 10 and 14 points respectively. Two distinct factors account for this rise in education levels: (a) *cohort replacement*, as smaller, less-educated cohorts are replaced by larger, more highly educated ones; and (b) *within cohort aging*, whereby the educational and other characteristics of mothers changes as the cohort ages. These two different processes are illustrated in Chart 1.[12]

12. Figures in Chart 1 are based on data from the 1981, 1986, 1991, 1996 and 2001 Censuses of Canada.

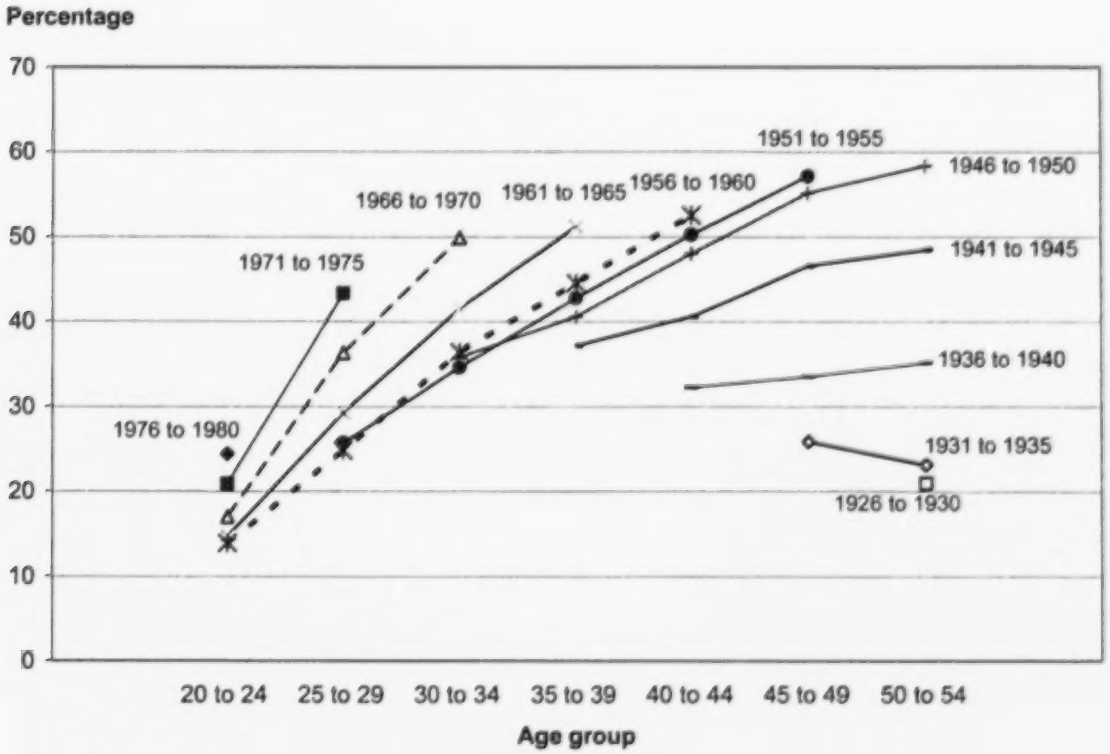
Table 1 Distribution of mothers with children 18 years and under by selected characteristics

	Lone mothers			Married mothers		
	1981	1991	2001	1981	1991	2001
	percentage					
1. Age groups						
Under 25 (years)	10.6	9.9	7.1	8.1	4.1	3.0
25 to 29	14.9	15.5	11.2	17.7	14.7	9.3
30 to 34	19.2	20.9	15.8	22.8	24.5	18.4
35 to 39	18.7	22.4	23.3	19.3	24.8	26.0
40 to 44	13.9	18.1	22.8	14.1	19.2	24.0
45 to 49	10.4	8.3	13.2	9.6	8.6	13.3
50 to 54	7.3	3.0	4.8	5.6	2.8	4.4
55 and over	4.9	2.0	1.8	2.9	1.4	1.6
2. Number of children						
1	52.8	54.9	54.3	37.5	37.7	38.8
2	32.1	33.1	32.9	41.1	43.2	43.0
3	10.9	9.4	9.8	15.8	15.1	14.1
4 or more	4.3	2.6	3.0	5.6	4.1	4.1
3. Child under 6 years	32.8	38.5	32.2	45.3	46.3	42.2
4. Education						
Less than high school	48.6	34.7	23.8	43.4	26.4	17.3
High school graduation	23.0	28.1	26.9	25.3	31.4	26.8
Some postsecondary	23.8	29.4	38.2	24.8	30.0	36.1
University degree	4.6	7.7	11.0	6.5	12.3	19.9
5. Immigrant status						
Canadian born	84.6	84.5	81.1	79.4	80.5	76.8
Foreign born	15.4	15.6	19.0	20.6	19.5	23.2
6. Marital status						
Never married	16.6	29.4	38.1	...	...	...
Divorced/separated	66.3	63.4	57.1	...	...	...
Widowed	17.1	7.2	4.8	...	...	...

... not applicable

Source: Statistics Canada, Census of Canada, 1981, 1991 and 2001.

Chart 1 Educational attainment of lone mothers by birth cohort — Percentage with at least some post-secondary education



Source: Statistics Canada, Census of Canada, 1981, 1986, 1991, 1996 and 2001.

We can observe the effects of *cohort replacement* by examining changes in educational attainment *within* age groups. For example, the proportion of 30- to 34-year-old lone mothers with some postsecondary education was roughly 35% for all of the cohorts born from 1946 to 1960. This figure rose to 42% in the 1961-to-1965 cohort and then to 50% in the 1966-to-1970 cohort (who were aged from 30 to 34 in 2001).

We can observe the effects of *cohort aging* by examining changes *within* specific birth cohorts. Since women with higher education levels have children later in life than less educated women, the share of lone mothers with higher levels of education rises as the cohort ages. For example, in the cohort born from 1951 to 1955, only 26% of lone mothers had more than high school in 1981 when they were in their late twenties. By 1991, now in their late thirties, 43% of lone mothers in the cohort had postsecondary or university degrees and by 2001 the figure had risen to 57%. The same trend is evident among all of the large baby boom cohorts (born approximately from 1946 to 1965) who made up a rising share of all lone mothers over the period, thereby raising aggregate education levels.

In short, the lone mothers who gained employment and saw their earnings rise during the recovery of the late 1990s were qualitatively different from lone-parent mothers at earlier business cycle peaks in the early and late 1980s. During this recovery, the 'baby boom' generation entered their forties, swamping both older and younger cohorts with their numbers. More importantly, recent cohorts of lone mothers reflect the dramatic gains in educational attainment which are characteristic of all women born after 1950. In 1981, only a quarter of all lone mothers were born after 1950. By 2001, their share had risen to 93%.

4.2. *Changes in labour market outcomes*

We now turn to the raw changes in our dependent variables. Tables 2 and 3 show changes in the employment rates and earnings of employed mothers within categories of the main independent variables. Since trends in annual earnings reflect changes in both wage rates and labour supply (hours and weeks worked) and changes in labour supply differed significantly between employed married and single mothers, we also include estimates of changes in weekly earnings.

Four key findings are relevant to our analysis.

- First, gains in employment and earnings were *much* larger among married mothers than among lone mothers, despite comparable changes in age composition and education levels. Between 1980 and 2000, employment rates rose 12 percentage points among lone mothers compared to 21 percentage points among their married counterparts. Similarly, annual earnings among employed married mothers rose by 49%, far outstripping earnings gains among employed lone mothers (16%).

- Second, *among lone mothers*, most of the employment growth and all of the earnings gains went to lone mothers aged 40 and over. Annual earnings among younger lone mothers actually declined. The largest gains among married mothers also went to older women but those under 40 still had substantial gains in employment and only the earnings of those under 30 showed little change.

- Third, among lone mothers, changes in employment and earnings *within* education levels were small or non-existent. In contrast, married mothers experienced significant increases in both employment and earnings at all levels of education.

- Finally, the timing of change varied in important ways. Most of the employment and earnings gains among married mothers and among older lone mothers occurred in the 1980s. The smaller employment gains observed among younger lone mothers took place mainly in the 1990s.

Together these results imply that the processes underlying labour market gains were potentially quite different not only between single and married mothers but also between younger and older lone mothers and between the 1980s and 1990s. The decomposition analysis that follows is organized to capture these differences.

Table 2 Employment rates among lone mothers and married mothers, 1980 to 2000

	1980	1990	2000	Change 1980 to 2000	Change 1980 to 1990	Change 1990 to 2000
	percentage					
Age of lone mothers						
Under 25 (years)	44.8	44.8	50.7	5.9	0.1	5.8
25 to 29	57.1	55.1	64.3	7.2	-2.0	9.2
30 to 34	66.4	65.3	71.5	5.1	-1.1	6.2
35 to 39	69.6	73.9	76.2	6.6	4.3	2.3
40 to 44	68.2	77.8	79.3	11.1	9.6	1.5
45 to 49	62.9	75.8	80.3	17.4	12.9	4.6
50 to 54	54.5	66.4	76.1	21.7	12.0	9.7
55 and over	40.4	46.1	51.6	11.3	5.8	5.5
Less than high school	45.3	47.2	52.8	7.5	1.9	5.6
High school graduation	68.1	69.3	72.2	4.1	1.1	3.0
Some postsecondary	80.6	80.1	81.6	1.0	-0.5	1.5
University degree	90.5	90.3	89.8	-0.7	-0.2	-0.5
Never married	49.6	53.5	65.2	15.6	4.0	11.7
Divorced/separated	65.7	72.7	78.9	13.2	7.0	6.2
Widowed	54.2	63.9	67.2	13.1	9.7	3.4
Total	**61.0**	**66.4**	**73.1**	**12.1**	**5.4**	**6.7**
Age of married mothers						
Under 25 (years)	57.3	66.8	65.9	8.6	9.5	-1.0
25 to 29	59.2	73.8	75.0	15.8	14.5	1.2
30 to 34	59.4	75.2	79.1	19.7	15.9	3.8
35 to 39	61.9	78.6	80.8	18.9	16.7	2.2
40 to 44	62.2	80.2	83.0	20.8	18.0	2.9
45 to 49	55.9	76.6	82.3	26.4	20.7	5.6
50 to 54	46.8	66.9	77.4	30.6	20.2	10.4
55 and over	34.8	46.3	52.1	17.3	11.5	5.8
Less than high school	50.0	64.1	64.6	14.6	14.1	0.5
High school graduation	58.7	75.6	77.5	18.8	16.9	1.9
Some postsecondary	68.4	82.6	84.2	15.9	14.3	1.6
University degree	74.3	86.1	87.2	12.9	11.7	1.1
Total	**58.3**	**75.9**	**79.6**	**21.3**	**17.6**	**3.7**

Source: Statistics Canada, Census of Canada.

Table 3 Mean earnings of mothers with children younger than 18 years and with positive earnings

	Annual earnings				Weekly earnings			
	1980	1990	2000	% change 1980 to 2000	1980	1990	2000	% change 1980 to 2000
Age of lone mothers								
Under 25 (years)	10,688	9,248	9,795	-8	396	420	397	0
25 to 29	16,976	15,323	15,892	-6	489	488	466	-5
30 to 34	22,033	20,843	20,589	-7	557	567	531	-5
35 to 39	24,895	25,422	25,345	2	622	628	616	-1
40 to 44	25,364	29,343	28,405	12	637	696	653	2
45 to 49	23,705	30,209	32,352	36	579	731	731	26
50 to 54	22,158	26,849	32,779	48	535	655	753	41
55 and over	19,760	21,099	26,487	34	475	542	671	41
Less than high school	16,473	15,960	16,713	1	459	499	462	1
High school graduation	20,773	21,085	21,304	3	536	548	535	0
Some postsecondary	24,462	24,891	25,457	4	610	632	615	1
University degree	39,861	42,060	41,870	5	938	941	933	-1
Never married	17,777	17,618	19,901	12	483	533	534	10
Divorced/separated	22,680	25,333	27,845	23	578	633	653	13
Widowed	20,471	23,450	26,152	28	540	620	629	16
Total	21,684	23,376	25,073	16	560	609	611	9
Age of married mothers								
Under 25 (years)	11,621	11,684	11,237	-3	448	417	393	-12
25 to 29	16,326	17,596	18,145	11	517	518	517	0
30 to 34	18,753	21,136	23,871	27	539	564	619	15
35 to 39	19,912	23,864	27,432	38	542	592	656	21
40 to 44	19,865	25,946	29,812	50	523	618	684	31
45 to 49	19,297	25,962	32,453	68	503	616	728	45
50 to 54	18,429	23,355	32,433	76	487	581	765	57
55 and over	17,033	19,547	25,419	49	509	515	643	27
Less than high school	14,809	16,195	18,034	22	441	459	471	7
High school graduation	17,021	19,749	22,031	29	487	507	536	10
Some postsecondary	19,999	23,409	25,938	30	569	594	622	9
University degree	30,326	36,031	40,716	34	799	862	956	20
Total	18,160	22,417	27,033	49	520	575	652	25

Source: Statistics Canada, Census of Canada.

5. *Accounting for change*

In this section, we use the Oaxaca-Blinder decomposition technique to determine the extent to which compositional changes can 'account' for changes in mothers' employment rates and earnings. Our analysis proceeds in three parts. First, we ask to what extent changes in demographic composition can account for changes in the probability of being employed among *all* lone and married mothers. Second, we consider the effects of compositional changes on the log earnings (annual and weekly) of those who were in paid work. Third, we ask whether our findings about the *average* lone mother are valid for those mothers who are at risk of being in low-income. In light of our descriptive results, we conduct our analysis separately for mothers under 40 years and mothers 40 years and over.[13]

5.1. Mothers' probability of being employed

The OLS regression estimates for the probability of being employed are shown in Appendix Tables 1 and 2 and the results of the multivariate decomposition are summarized in Table 4. Though not the main focus of our analysis, a number of the main changes in the model parameters (coefficients) are worth highlighting. For both married and single mothers, the effect of the number of children on employment declined over time. The effect of having a child under 6 at home declined for married but not for single mothers. In 1980, immigrant mothers were more likely to be employed than native-born mothers but by 2000, immigrant mothers were less likely to be employed. Finally, the probability of being employed among married mothers with low earnings husbands fell while the probability of being employed among mothers with high earnings husbands rose.

The first panel of Table 4 shows the decomposition results for all lone and married mothers. Panel two show results for mothers under 40 years and panel three shows results for those 40 years and over. It is important to note that only the decomposition results for all mothers take account of the fact that the share of mothers 40 years and over was rising over the period.

Among *all* lone mothers, compositional changes (changes in the demographic makeup of lone mothers) 'explain' 64% of the total increase in the employment rate between 1980 and 2000. This leaves 36% of the change 'unexplained.' Inspection of the underlying decomposition results (tables available on request) indicates the major compositional change driving higher employment rates was the rise in education levels. Of the 7.7 percentage point increase in employment rates associated with changing demographic composition, 7.4 percentage points were accounted for by changing levels of educational attainment. The implication, however, is not that the aging of the lone-mother population was unimportant. As highlighted above, part of the increase in education levels are the result of population aging.

These average changes, however, conceal major differences between younger and older lone mothers. For lone mothers 40 years and over, 85% of the 18-percentage-point increase over the entire period was accounted for by compositional change. Three-quarters of the gain associated with compositional change was associated with the increase in educational qualifications. In contrast for younger lone mothers, the much smaller increase in the employment rate (8 percentage points) was

13. We choose age 40 to distinguish 'younger' from 'older' lone mothers based on the age-specific trends in employment and earnings reported in Tables 2 and 3.

associated primarily with behavioural (and other unmeasured) changes. For example, in the 1990s, 67% of the increase in the employment rate was due to 'unexplained' changes rather than compositional changes. This suggests that unmeasured variables, including policy-induced behavioural changes, are possible explanations.[14]

For married mothers, compositional changes accounted for a relatively small share (6 percentage points) of the total increase in employment. This is not to say that compositional changes were unimportant. In fact, 6 percentage points is only slightly less than the 8-percentage-point gain associated with compositional changes among lone mothers. Rather, behavioural and other unmeasured changes led to much larger gains. Unmeasured variables accounted for a 16-percentage-point gain among married mothers compared to only 5 percentage points among lone mothers. This overall pattern was similar for older and younger married mothers.

Table 4 Decomposition of change in employment rate among lone mothers and married mothers with children 18 years and under with positive earnings

	All				Under 40 years of age				40 years of age and over			
		Change due to				Change due to				Change due to		
	Total	Composition	Coefficients	Joint	Total	Composition	Coefficients	Joint	Total	Composition	Coefficients	Joint
Lone mothers												
1980 to 1990	5.4	4.3	1.6	-0.5	1.3	0.6	0.4	0.3	13.9	12.0	3.7	-1.8
Percentage	...	79%	30%	-9%	...	46%	32%	22%	...	86%	27%	-13%
1990 to 2000	6.7	3.5	3.3	-0.1	6.6	1.9	4.4	0.2	4.0	2.7	1.0	0.2
Percentage	...	52%	50%	-1%	...	29%	67%	4%	...	69%	26%	5%
1980 to 2000	12.1	7.7	4.8	-0.4	7.9	2.9	4.4	0.6	17.9	14.8	5.7	-2.7
Percentage	...	64%	40%	-4%	...	36%	56%	7%	...	83%	32%	-15%
Married mothers												
1980 to 1990	17.6	4.0	13.6	0.0	15.8	2.4	13.0	0.4	21.4	8.0	14.5	-1.0
Percentage	...	23%	77%	0%	...	15%	82%	3%	...	37%	68%	-5%
1990 to 2000	3.7	2.0	1.6	0.0	2.9	2.2	1.1	-0.4	4.5	1.8	2.8	-0.1
Percentage	...	55%	45%	0%	...	76%	39%	-15%	...	39%	63%	-2%
1980 to 2000	21.3	6.1	15.6	-0.4	18.7	5.0	14.0	-0.3	25.9	9.6	18.8	-2.5
Percentage	...	29%	73%	-2%	...	27%	75%	-2%	...	37%	72%	-10%

... not applicable
Source: Statistics Canada, Census of Canada.

5.2. The earnings of employed mothers

The OLS regression estimates for log annual earnings of employed mothers are shown in Appendix Tables 3 and 4 and the results of the multivariate decomposition are summarized in Table 5. As before, we begin by highlighting the main changes in the model parameters (coefficients) from the Appendix tables.

The effect of each additional child on earnings declined for both single and married mothers and the effect of having a child under 6 also declined for both groups. The earnings gap between younger and older mothers grew substantially, reflecting well-established changes in the age–earnings distribution for the labour market as a whole. As with employment, immigrant mothers saw their

14. Isolating the effects of policy-induced changes on the labour market behaviour on lone mothers are, in our view, well beyond the estimation capacity of census-based data. Nevertheless, we do note that provinces with above-average reductions in social assistance (Alberta, Ontario) and above-average support for child care (Quebec) also experienced above-average gains in lone mothers' employment. In all three cases, the above-average change was due to above-average effects of 'behavioural change' (i.e., to changes in the coefficients).

earnings fall relative to the native-born, and the earnings of women married to husbands with low earnings fell while the earnings of women married to husbands with high earnings rose. Importantly, changes in the expected earnings of young single mothers by education level (estimated from the regression equations, Appendix Table 4) show that earnings within all education levels actually declined somewhat (see also Table 3 above).[15]

The results of the multivariate decomposition with log annual earnings of the employed as the dependent variable are shown in Table 5, and it is instructive to begin with the results for married mothers.

Table 5 Decomposition of change in log employment earnings among lone mothers and married mothers with children 18 years and under

	All				Under 40 years of age				40 years of age and over			
		Change due to				Change due to				Change due to		
	Total	Composition	Coefficients	Joint	Total	Composition	Coefficients	Joint	Total	Composition	Coefficients	Joint
Lone mothers												
1980 to 1990	0.050	0.089	-0.039	-0.001	-0.044	0.041	-0.083	-0.002	0.230	0.196	0.039	-0.004
Percentage	...	178%	-77%	-1%	...	-94%	190%	4%	...	85%	17%	-2%
1990 to 2000	0.055	0.085	-0.033	0.004	0.016	0.031	-0.020	0.006	-0.013	0.041	-0.056	0.002
Percentage	...	153%	-60%	7%	...	185%	-123%	38%	...	-326%	444%	-18%
1980 to 2000	0.105	0.157	-0.064	0.012	-0.027	0.069	-0.110	0.014	0.217	0.237	0.018	-0.038
Percentage	...	149%	-61%	11%	...	-255%	407%	-52%	...	109%	8%	-18%
Married mothers												
1980 to 1990	0.263	0.089	0.158	0.016	0.227	0.072	0.142	0.013	0.332	0.123	0.188	0.021
Percentage	...	34%	60%	6%	...	32%	62%	6%	...	37%	57%	6%
1990 to 2000	0.164	0.105	0.039	0.019	0.118	0.098	0.013	0.007	0.156	0.053	0.095	0.008
Percentage	...	64%	24%	12%	...	83%	11%	6%	...	34%	61%	5%
1980 to 2000	0.427	0.171	0.192	0.065	0.345	0.155	0.144	0.046	0.488	0.165	0.303	0.019
Percentage	...	40%	45%	15%	...	45%	42%	13%	...	34%	62%	4%

... not applicable
Source: Statistics Canada, Census of Canada.

Among all married mothers, rising age and education levels were associated with substantial increases in log earnings (0.171) but these gains were augmented by even larger gains (0.192) due to changes in the coefficients. For lone mothers, the increase in log earnings as a result of compositional changes (0.157) was similar in magnitude but these gains were offset somewhat by the negative impact (-0.064) of changes in the coefficients.[16]

As in our descriptive results, virtually all of the earnings gains among single mothers went to women aged 40 and over, while earnings of lone mothers under 40 were essentially unchanged. For lone mothers aged 40 and over, compositional changes accounted for almost all of the increase in earnings while changes in the coefficients were negligible. Among younger lone mothers, there is little change to account for. Changes in composition were associated with a modest increase of

15. These are the expected earnings computed from the regression equations for the two years, with the values of all other variables set to their mean.

16. The negative impact of changes in coefficients only appears in the decomposition of log earnings. In the decomposition of actual earnings levels, compositional changes account for 93% of the increase between 1980 and 2000, changes in the coefficients for 4% and their joint effect for 3%. The conclusion that *all* of the change in earnings among lone mothers is a result changes in composition, however, is robust across both models.

0.069 in log earnings (compared a gain of 0.155 among young married mothers) but were offset by a somewhat larger change (-0.110) in the coefficients.

The results for annual earnings, however, leave several important questions unanswered. Changes in *annual* earnings reflect changes in both wage rates and labour supply (hours and weeks worked). One must disentangle the effects of these two factors to answer a number of important questions. In particular, policies are often designed to affect (increase) the labour supply of various groups (here lone mothers), so there is particular interest in this variable, measured here as weeks worked. Hence, we ask whether three specific findings based on annual earnings, and reported earlier, are driven primarily by a labour supply response as measured by weeks worked, or by changes in weekly earnings.

First, did the annual earnings of lone and married mothers rise mainly because of greater work effort (a change in behaviour affecting labour supply) or because they were earning more for the same amount of working time? Second, on an annual basis, earnings rose almost four times as much for married mothers as for lone mothers. Was this large difference due to differences in increased work effort between the two groups (differential labour supply responses) or differences in the growth of wage rates? Finally, the results for annual earnings indicate that changes in composition were associated with higher annual earnings in both groups. However, while returns (measured by annual earnings) to education and other labour market characteristics rose significantly for married mothers, both young and old, they fell for younger lone mothers. Why would annual returns to education among young lone mothers fall while similarly measured returns to education among younger married mothers rose? Both of these outcomes occurred within the context of a general decline in the relative wages of younger workers over the past several decades (Bouderbat, Lemieux and Riddell, forthcoming). Did young married mothers escape this trend or simply increase their labour supply (weeks worked) to offset it?

To answer these questions, we compare changes in log annual earnings (Table 5) with changes in log weekly earnings (Table 6).[17] We take advantage of the fact that the change in the mean of log annual earnings is simply the sum of the change in the mean of log weekly earnings and the mean of log weeks worked. We compute the log annual earnings and log weekly earnings, and compute the log weeks worked as a residual. This allows us to address the first question posed above. Among employed lone mothers the change in log weekly earnings between 1980 and 2000 was 0.010 (Table 6) and in log annual earnings 0.105 (Table 5). By implication, virtually all of the change in annual earnings ($0.105 - 0.010 = 0.095$) was due to more weeks worked rather than higher earnings per week. Among married mothers, changes in weekly earnings accounted for 40% (0.170/0.427) of the change in annual earnings and changes in weeks worked for 60%. In short, most of the gains in annual earnings for both lone and married mothers were a result of a labour supply change and increased work effort (weeks worked) rather than higher weekly wages.

17. Ideally, we would take account of changes in both weeks worked and hours worked per week (= total hours worked per year) to calculate changes in hourly wages. Since the census only asks for hours worked in the week prior to the census date we have not attempted to estimate hourly wages.

Table 6 Decomposition of change in log weekly earnings among lone mothers and married mothers with children 18 years and under

	All				Under 40 years of age				40 years of age and over			
		Change due to				Change due to				Change due to		
	Total	Composition	Coefficients	Joint	Total	Composition	Coefficients	Joint	Total	Composition	Coefficients	Joint
Lone mothers												
1980 to 1990	0.023	0.063	-0.042	0.002	-0.053	0.022	-0.080	0.005	0.165	0.151	0.023	-0.008
Percentage	...	276%	-183%	8%	...	-42%	151%	-9%	...	91%	14%	-5%
1990 to 2000	-0.013	0.058	-0.077	0.005	-0.051	0.026	-0.080	0.003	-0.035	0.033	-0.070	0.002
Percentage	...	-438%	579%	-41%	...	-51%	156%	-5%	...	-95%	199%	-5%
1980 to 2000	0.010	0.102	-0.114	0.022	-0.104	0.039	-0.163	0.020	0.130	0.178	-0.027	-0.021
Percentage	...	1060%	-1187%	226%	...	-37%	157%	-19%	...	137%	-20%	-16%
Married mothers												
1980 to 1990	0.087	0.062	0.014	0.011	0.044	0.044	-0.010	0.010	0.178	0.110	0.061	0.008
Percentage	...	71%	16%	13%	...	99%	-21%	22%	...	61%	34%	5%
1990 to 2000	0.083	0.076	-0.011	0.018	0.051	0.077	-0.036	0.010	0.095	0.049	0.041	0.004
Percentage	...	91%	-13%	21%	...	151%	-70%	19%	...	52%	44%	4%
1980 to 2000	0.171	0.118	-0.003	0.056	0.095	0.106	-0.053	0.042	0.273	0.156	0.114	0.00
Percentage	...	69%	-2%	33%	...	112%	-56%	44%	...	57%	42%	1%

... not applicable

Source: Statistics Canada, Census of Canada.

What of the differences between lone and married mothers in annual earnings increases? Earlier results point to a differential labour supply response accounting for at least some of the difference. For example, the share of employed married mothers working almost full year (40 weeks or more) increased by 26 percentage points compared to only 13 percentage points among lone mothers. Analysis based on weekly wages and weeks worked suggests that the differential increase in labour supply accounted for about half of the difference in the increase in annual earnings between lone and married mothers. The difference in the change in log weekly earnings between married and lone mothers (0.17 – 0.01, Table 6) was 0.16 compared to a difference (0.42 – 0.10, Table 5) of 0.32 in the change in log annual earnings.

Finally, why did returns to wage-related characteristics (particularly education), measured using annual earnings, rise for married women and fall for young lone mothers? The decomposition results in Table 6 show that, measured using weekly wages, this puzzling result tends to disappear. Returns to education and other labour market characteristics (changes in coefficients) either declined (for all lone mothers) or remained stable (for all married mothers). For mothers under 40, returns declined for both married (-0.05) and lone mothers (-0.16). Younger married mothers managed to more than offset this decline on an annual basis (Table 5) by means of large increases in labour supply within age and education groups. For example, while the share of employed married mothers under 40 working almost full year rose by nearly 20 percentage points, the increase for younger lone mothers was approximately 5 percentage points.

5.3. Lone mothers with earnings above the low-income cutoff (LICO)

To this point, the analysis has considered the extent to which compositional shifts account for changes in *average* employment and earnings. Averages, however, may be misleading. For example, it is possible that most of the gains in labour market outcomes, especially among older single mothers, were observed among the higher-paid and that little change was observed among those close to or at the LICO. Hence, as a final step, we examine the role of compositional changes on the share of all lone mothers with sufficient earnings to raise their incomes above the LICO. We

ask whether compositional changes themselves were substantial enough to result in significantly fewer lone mothers being in a low-income situation.

The joint impact of rising employment rates and rising earnings among lone mothers produced a modest increase (6 percentage points) in the share of all lone mothers with earnings sufficient to raise their incomes above the LICO (Table 7). Strikingly, virtually all of this change can be accounted for by compositional shifts and most of this change occurred in the 1990s rather than in the 1980s. Inspection of the underlying components indicates that virtually all of the change can be attributed to the increase in the educational attainment of lone-parent mothers.

As with employment and earnings, however, these gains were almost entirely concentrated among older women. The share of single mothers with earnings above the LICO increased by 9 percentage points among lone mothers aged 40 and over compared with only a 2-percentage-point gain among younger lone mothers. And among older lone mothers, compositional changes account for virtually all of the rise.

Table 7 Decomposition of change in share of lone mothers with earnings above the low-income cutoff

	All				Under 40 years of age				40 years of age and over			
		Change due to				Change due to				Change due to		
	Total	Composition	Coefficients	Joint	Total	Composition	Coefficients	Joint	Total	Composition	Coefficients	Joint
1980 to 1990	2.1	2.9	-0.3	-0.5	0.0	1.8	-0.4	-0.4	9.2	8.5	0.6	0.0
Percentage	...	137%	-15%	-22%	...	...	...	...	...	93%	7%	0%
1990 to 2000	3.9	5.0	-0.7	-0.4	2.0	2.3	0.0	-0.2	0.0	2.0	-1.8	-0.2
Percentage	...	128%	-18%	-10%	...	111%	0%	-11%	...	...	...	...
1980 to 2000	6.1	7.8	-0.7	-1.1	2.1	4.4	-1.4	-1.0	9.1	10.3	0.8	-2.0
Percentage	...	129%	-11%	-18%	...	217%	-66%	-51%	...	113%	9%	-22%

... not applicable

Source: Statistics Canada, Census of Canada.

6. Conclusion

Between 1980 and 2000, the share of lone mothers with employment earnings increased by 12 percentage points, average earnings rose by 39%, and the low-income rate declined by 11 percentage points. Most of this employment growth and all of the earnings gains went to lone mothers aged 40 and over. For these women, compositional changes account for 83% of employment gains and all of the earnings gains. In turn, most of this compositional change can be explained by rising levels of educational attainment. Between 1980 and 2000, education levels among lone mothers soared as earlier generations of women with limited education were replaced by new cohorts of women with higher levels of education. The impact of these educational changes was magnified by the aging of the large baby boom cohorts who, by the late 1980s, were entering their forties and increasingly dominated the average patterns for all women.

Among younger lone mothers, there is little change to account for. Employment increased by about 8 percentage points over the two decades, compared to 18 percentage points among older single mothers, and 21 percentage points among married mothers. Annual earnings among younger lone mothers were virtually unchanged compared to an increase of 26% among older single mothers and

49% among married mothers. The modest gains that younger lone mothers did make came largely during the 1990s and were not explained by compositional changes. This finding is consistent with the possibility that the employment gains of younger single mothers in the 1990s were induced by social policy.

Increases in annual earnings of all employed mothers, single and married, were mainly the result of increased labour supply—more weeks worked—rather than of higher returns to their wage-relevant labour market characteristics. Consistent with trends in the labour market as a whole, returns for younger mothers, as indexed by weekly earnings, declined over the period. As a result, the share of younger lone mothers with earnings sufficient to raise their earnings above the low-income cutoff was up by only 2 percentage points over the two decades, despite rising education and employment levels. The large difference between the gains in annual earnings of single and married mothers was due in large measure to a much larger increase in the number of weeks married mothers were employed.

The long-term increase in employment and earnings of women with children is undoubtedly among the major historical shifts of the past half century. Like married mothers, lone mothers were much better educated and somewhat older in 2000 than in 1980 and the aggregate employment and earnings for them reflected this fact. Without taking these compositional changes into consideration, their labour market outcomes in 2000 were little changed from those in 1980. The demography-driven gains of lone mothers in the past quarter century, however, are unlikely to continue into the future. The revolution in female education levels that divides the post-war generations from their predecessors is now reaching maturity. By 2001 almost 70% women aged 25 to 29 years had completed university or held a postsecondary certificate, leaving little room for further gains. As importantly, the aging of the baby boom mothers was a one-time event that will only be faintly 'echoed' as their children enter their child-bearing years. The implication is that in the absence of other policy or behavioural change, future earnings gains and the associated decline in single mothers' low-income rates are likely to be modest.

Appendix table 1 Ordinary least squares estimates of the probability of employment for lone and married mothers with children less than 18

	Lone mothers			Married mothers		
	1980	1990	2000	1980	1990	2000
Intercept	0.575	0.615	0.655	0.738	0.831	0.856
Age 15 to 24	-0.072	-0.118	-0.117	0.043	-0.050	-0.098
Age 25 to 29	-0.036	-0.083	-0.047	0.046	-0.003 n	-0.047
Age 30 to 34	0.001 n	-0.029	-0.015	0.029	0.009	-0.012
Age 35 to 39	0.017	0.004 n	-0.003 n	0.030	0.016	-0.002 n
Age 40 to 44 (reference)						
Age 45 to 49	-0.045	-0.027	-0.020	-0.084	-0.052	-0.027
Age 50 to 54	-0.119	-0.078	-0.058	-0.183	-0.127	-0.068
Age 55 and over	-0.231	-0.198	-0.218	-0.290	-0.266	-0.219
University degree	0.366	0.347	0.318	0.274	0.234	0.220
Some postsecondary	0.297	0.276	0.249	0.193	0.183	0.174
High school graduation	0.195	0.188	0.168	0.086	0.106	0.102
Less than high school (reference)						
Number of children	-0.083	-0.078	-0.049	-0.073	-0.056	-0.046
With children under 6 years	-0.080	-0.063	-0.082	-0.145	-0.088	-0.068
Immigrant	0.106	0.019	-0.035	0.079	0.015	-0.063
Divorced/separated	0.110	0.106	0.069	...	...	...
Widowed	0.075	0.068	-0.001 n	...	...	...
Never married (reference)						
Earnings of husband						
Less than $10,000	...	...	...	-0.096	-0.123	-0.163
$10,000 to $29,999	...	...	...	0.002 n	0.007	-0.016
$30,000 to $39,999 (reference)						
$40,000 to $59,999	...	...	...	-0.049	-0.031	-0.017
$60,000 to $80,000	...	...	...	-0.109	-0.067	-0.044
More than $80,000	...	...	...	-0.169	-0.103	-0.101
R-square	0.160	0.154	0.120	0.072	0.063	0.067
Sample size	71,308	92,043	112,509	610,621	584,540	568,655

n = not significant at $p < 0.05$

... not applicable

Source: Statistics Canada, Census of Canada.

Appendix table 2 Ordinary least squares estimates of the probability of employment for lone and married mothers by mother's age

	Lone mothers			Married mothers		
	1980	1990	2000	1980	1990	2000
Mothers under 40 years						
Intercept	0.614	0.644	0.673	0.810	0.888	0.892
Age 15 to 24	-0.090	-0.120	-0.118	0.001 n	-0.082	-0.108
Age 25 to 29	-0.052	-0.083	-0.046	0.013	-0.028	-0.052
Age 30 to 34	-0.015	-0.031	-0.012	-0.001 n	-0.010	-0.013
Age 35 to 39 (reference)						
University degree	0.352	0.342	0.325	0.259	0.218	0.210
Some postsecondary	0.280	0.269	0.247	0.180	0.172	0.168
High school graduation	0.174	0.176	0.150	0.075	0.095	0.095
Number of children	-0.093	-0.091	-0.060	-0.085	-0.067	-0.058
With children under 6 years	-0.085	-0.067	-0.078	-0.151	-0.087	-0.067
Immigrant	0.105	0.000 n	-0.038	0.076	0.006	-0.078
Divorced/separated	0.119	0.116	0.075	...	...	...
Widowed	0.088	0.086	-0.015 n	...	...	...
Earnings of husband						
Less than $10,000	...	...	...	-0.091	-0.125	-0.169
$10,000 to $39,999	...	...	...	0.004 n	0.005	-0.019
$40,000 to $59,999	...	...	...	-0.054	-0.036	-0.019
$60,000 to $80,000	...	...	...	-0.124	-0.084	-0.048
More than $80,000	...	...	...	-0.172	-0.116	-0.111
R-square	0.159	0.148	0.117	0.080	0.068	0.084
Sample size	45,108	63,107	64,927	414,735	398,561	321,919
Mothers 40 years and over						
Intercept	0.569	0.565	0.622	0.671	0.757	0.810
Age 40 to 44 (reference)						
Age 45 to 49	-0.039	-0.018	-0.015	-0.071	-0.042	-0.022
Age 50 to 54	-0.109	-0.066	-0.051	-0.163	-0.110	-0.060
Age 55 and over	-0.218	-0.189	-0.210	-0.265	-0.244	-0.214
University degree	0.383	0.355	0.315	0.297	0.250	0.222
Some postsecondary	0.325	0.289	0.250	0.211	0.198	0.176
High school graduation	0.232	0.218	0.194	0.107	0.126	0.110
Number of children	-0.069	-0.042	-0.029	-0.051	-0.032	-0.028
With children under 6 years	-0.053	-0.038	-0.093	-0.099	-0.079	-0.071
Immigrant	0.106	0.041	-0.032	0.083	0.028	-0.047
Divorced/separated	0.071	0.077	0.061	...	...	...
Widowed	0.039	0.038	-0.003 n	...	...	...
Earnings of husband						
Less than $10,000	...	...	...	-0.104	-0.117	-0.153
$10,000 to $39,999	...	...	...	-0.004	0.011	-0.010
$40,000 to $59,999	...	...	...	-0.036	-0.017	-0.012
$60,000 to $80,000	...	...	...	-0.077	-0.034	-0.036
More than $80,000	...	...	...	-0.164	-0.084	-0.089
R-square	0.165	0.138	0.104	0.086	0.089	0.086
Sample size	26,200	28,936	47,582	195,886	185,979	246,736

n = not significant at $p < 0.05$

... not applicable

Source: Statistics Canada, Census of Canada.

Appendix table 3 Ordinary least squares estimates of log employment earnings for lone and married mothers with children 18 years and under

	Lone mothers			Married mothers		
	1980	1990	2000	1980	1990	2000
Intercept	9.703	9.602	9.556	9.706	9.794	9.815
Age 15 to 24	-0.923	-1.112	-1.020	-0.605	-0.770	-0.919
Age 25 to 29	-0.425	-0.618	-0.537	-0.240	-0.361	-0.501
Age 30 to 34	-0.155	-0.298	-0.284	-0.094	-0.164	-0.254
Age 35 to 39	-0.010 n	-0.115	-0.093	0.011 n	-0.035	-0.083
Age 40 to 44 (reference)						
Age 45 to 49	-0.052	-0.026 n	0.058	-0.088	-0.055	0.024
Age 50 to 54	-0.157	-0.094	0.010 n	-0.178	-0.142	0.006
Age 55 and over	-0.236	-0.239	-0.180	-0.288	-0.173	-0.077
University degree	0.845	0.943	0.909	0.667	0.749	0.768
Some postsecondary	0.446	0.469	0.469	0.312	0.389	0.387
High school graduation	0.309	0.333	0.272	0.167	0.216	0.193
Less than high school (reference)						
Number of children	-0.213	-0.17	-0.13	-0.191	-0.161	-0.112
With children under 6 years	-0.114	-0.05	-0.08	-0.092	-0.023	-0.013
Immigrant	0.057	0.04	-0.14	0.169	0.095	-0.060
Divorced/separated	0.132	0.19	0.16	...	...	...
Widowed	0.001 n	0.05	0.03 n	...	...	...
Never married (reference)						
Earnings of husband						
Less than $10,000	...	...	...	-0.207	-0.463	-0.554
$10,000 to $29,999	...	...	...	-0.073	-0.140	-0.156
$30,000 to $39,999						
$40,000 to $59,999	...	...	...	-0.079	-0.024	0.020
$60,000 to $80,000	...	...	...	-0.174	-0.032	0.017
More than $80,000	...	...	...	-0.152	0.048	0.064
R-square	0.130	0.155	0.123	0.067	0.103	0.117
Sample size	43,350	60,929	82,117	353,620	442,980	452,617

n = not significant at $p < 0.05$

... not applicable

Source: Statistics Canada, Census of Canada.

Appendix table 4 Ordinary least squares estimates of employment earnings (logged) for lone and married mothers by mother's age

	Lone mothers			Married mothers		
	1980	1990	2000	1980	1990	2000
Mothers under 40 years						
Intercept	9.738	9.540	9.515	9.802	9.854	9.818
Age 15 to 24	-0.907	-1.004	-0.945	-0.638	-0.775	-0.857
Age 25 to 29	-0.413	-0.504	-0.452	-0.260	-0.348	-0.431
Age 30 to 34	-0.142	-0.182	-0.193	-0.105	-0.136	-0.175
Age 35 to 39 (reference)						
University degree	0.744	0.870	0.868	0.620	0.664	0.714
Some postsecondary	0.430	0.428	0.446	0.304	0.360	0.362
High school graduation	0.312	0.304	0.241	0.173	0.197	0.170
Number of children	-0.247	-0.197	-0.156	-0.225	-0.191	-0.138
With children under 6 years	-0.136	-0.050	-0.066	-0.106	-0.014	-0.009 n
Immigrant	0.054	0.064	-0.123	0.174	0.092	-0.046
Divorced/separated	0.166	0.206	0.166	...	...	...
Widowed	0.072	0.139	0.071 n	...	...	...
Earnings of husband						
Less than $10,000	...	...	...	-0.229	-0.489	-0.646
$10,000 to $30,000	...	...	...	-0.079	-0.142	-0.148
$40,000 to $59,999	...	...	...	-0.084	-0.035	0.015
$60,000 to $80,000	...	...	...	-0.191	-0.053	0.012 n
More than $80,000	...	...	...	-0.127	0.079	0.073
R-square	0.141	0.133	0.107	0.075	0.098	0.119
Sample size	27,717	39,579	44,953	246,333	300,801	252,648
Mothers 40 years and over						
Intercept	9.748	9.538	9.489	9.567	9.633	9.723
Age 40 to 44 (reference)						
Age 45 to 49	-0.032 n	-0.010 n	0.064	-0.060	-0.033	0.032
Age 50 to 54	-0.128	-0.064	0.021 n	-0.140	-0.104	0.019
Age 55 and over	-0.207	-0.195	-0.160	-0.251	-0.133	-0.075
University degree	0.995	1.025	0.944	0.779	0.859	0.812
Some postsecondary	0.467	0.543	0.497	0.314	0.429	0.405
High school graduation	0.292	0.392	0.314	0.132	0.240	0.216
Number of children	-0.166	-0.121	-0.104	-0.129	-0.103	-0.079
With children under 6 years	0.036 n	-0.028 n	-0.097	0.019 n	-0.021	-0.015
Immigrant	0.054	0.005 n	-0.149	0.156	0.098	-0.074
Divorced/separated	-0.022 n	0.120	0.155	...	...	...
Widowed	-0.160	-0.032 n	0.020 n	...	...	...
Earnings of husband						
Less than $10,000	...	...	...	-0.166	-0.403	-0.445
$10,000 to $30,000	...	...	...	-0.060	-0.140	-0.170
$40,000 to $59,999	...	...	...	-0.057	0.006 n	0.029
$60,000 to $80,000	...	...	...	-0.132	0.004 n	0.026
More than $80,000	...	...	...	-0.182	0.018 n	0.062
R-square	0.089	0.100	0.072	0.087	0.145	0.084
Sample size	15,633	21,350	37,164	107,287	142,179	199,969

n = not significant at $p < 0.05$

... not applicable

Source: Statistics Canada, Census of Canada.

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